

GenCore version 4.3  
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OM nucleic - nucleic search, using sw model

Run on: February 17, 2000, 09:38:05 ; Search time 1154.67 Seconds  
(without alignments)  
-3707.814 Million cell updates/sec

Title: US-08-455-683-1  
Perfect score: 1410  
Sequence: 1 GCGCACTTCGAGCCCAA.....AACCCAGATACAACTGCAG 1410

Scoring table: OLIGO\_NUC

Searched: 821193 seqs, -1518192014 residues

Database : GenEmbl.\*

Word size : 0

Number of hits that pass the threshold : 1642386

- 1: gb\_bal.\*
- 2: gb\_bal2.\*
- 3: gb\_bal3.\*
- 4: gb\_bal4.\*
- 5: gb\_bal5.\*
- 6: gb\_bal6.\*
- 7: gb\_bal7.\*
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- 9: gb\_bal9.\*
- 10: gb\_bal10.\*
- 11: gb\_bal11.\*
- 12: gb\_bal12.\*
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- 15: gb\_bal15.\*
- 16: gb\_bal16.\*
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- 28: gb\_bal28.\*
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- 33: gb\_bal33.\*
- 34: gb\_bal34.\*
- 35: gb\_bal35.\*
- 36: gb\_bal36.\*
- 37: gb\_bal37.\*
- 38: gb\_bal38.\*
- 39: gb\_bal39.\*
- 40: gb\_bal40.\*
- 41: gb\_bal41.\*
- 42: gb\_bal42.\*
- 43: gb\_bal43.\*
- 44: gb\_bal44.\*
- 45: gb\_bal45.\*
- 46: gb\_bal46.\*
- 47: gb\_bal47.\*
- 48: gb\_bal48.\*
- 49: gb\_bal49.\*

50: gb\_pl3.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

# SUMMARIES

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4	617	43.8	1186	12	S77872	S77872 kappa opioi
5	486	34.5	538	12	D31664	D31664 Mouse MORGD
6	354	25.1	438	12	MUSMORGDP2	MUSMORGDP2
7	354	25.1	1109	12	S77868S2	S77868 kappa opioi
8	273	19.4	423	12	MUSMORGDP1	MUSMORGDP1
9	273	19.4	2074	12	S77868S1	S77868 kappa opioi
10	255	18.1	432	12	MWC16998	U16998 Mus musculu
11	125	8.9	2481	5	E08874	E08874 cDNA coding
12	125	8.9	2481	12	RAIKOR	D16829 Rattus norv
13	125	8.9	1358	12	RAIKOR1A	L22001 Rat kappa o
14	125	8.9	2094	12	RAIKOR1B	L22536 Rattus norv
15	125	8.9	1273	12	RAIKOR2	L16534 Rat mRNA fo
16	116	8.2	4742	12	RNU00442	U00442 Rattus norv
17	86	6.1	658	12	RNKOR2	U17994 Rattus norv
18	65	4.6	1733	12	CPU04092	U04092 Cavia porce
19	60	4.3	4548	12	RNKOR3	U17995 Rattus norv
20	38	2.7	1757	12	RNKOR1	U17993 Rattus norv
21	35	2.5	715	3	AF012105	AF012105 Sus scrof
22	32	2.3	1142	5	A48343	A48343 Sequence 1
23	32	2.3	1182	9	HSU11053	U11053 Human kappa
24	32	2.3	432	9	HUMKOR	L36130 Homo sapien
25	32	2.3	455	9	HUMKOR1A	L26079 Homo sapien
26	32	2.3	1604	9	HUMKOR1B	L37362 Homo sapien
27	32	2.3	1154	11	HSU17298	U17298 Human kappa
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31	29	2.1	1451	12	RAISR	X97656 Rat somatos
32	29	2.1	3615	12	RNGPCRRA	X6314 R. norvegicu
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36	25	1.8	2706	5	AR031258	AR031258 Sequence
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39	25	1.8	1452	5	AR058215	AR058215 Sequence
40	25	1.8	1452	5	I62296	I62296 Sequence 3
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45	25	1.8	2024	12	MMOPIRECP	X31813 M.musculus

## ALIGNMENTS

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LOCUS		Mouse kappa opioi receptor mRNA, complete cds.				
DEFINITION		L11065				
ACCESSION		L11065.1				
VERSION		GI:348248				
KEYWORDS		kappa opioi receptor.				
SOURCE		Mus musculus (library: Clontech #ML1036a) brain cDNA to mRNA.				
ORGANISM		Mus musculus				
REFERENCE		Eukaryota; Metazoa; Chordata; Vertebrata; Mammalia;				
		Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.				
		1 (bases 1 to 1410)				

Thu Feb 17 13:27:14 2000

AUTHORS Yasuda,K., Raynor,K., Kong,H., Breder,C.D., Takeda,J., Reisine,T. and Bell,G.I.

TITLE Cloning and functional comparison of kappa and delta opiod receptors from mouse brain

JOURNAL Proc. Natl. Acad. Sci. U.S.A. 90, 6736-6740 (1993)

MEDLINE 93342064

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Matches 1410; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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QY 61 SCATCAGGAGCTGGACCATCAGGCTCAACAGCTACTCAGGATCTAAAGTGGTACCT 120  
DB 61 SCATCAGGAGCTGGACCATCAGGCTCAACAGCTACTCAGGATCTAAAGTGGTACCT 120  
QY 121 GGAAGCTGACGCTGACTTGGGAAGGAGGTGCGCCAAATCAGCGATCTGGAGCTGACGGC 180  
DB 121 GGAAGCTGACGCTGACTTGGGAAGGAGGTGCGCCAAATCAGCGATCTGGAGCTGACGGC 180  
QY 181 TCACCATGAGCTGCGCCATTCAGTCTCGAGAGATCCAGGCTTACCTGCTCCCA 240  
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DB 241 GTGCTTGCCTTCTCCCAACAGCAGCTCTTCTCCCAACTGGGAGATCCGACAGAT 300  
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QY 361 CTGTTATCAACCGCTGCTACTCTGTTATTTGGTGGGCTTAGTGGGAAATCTC 420  
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DB 601 ACTACACATCTTTACCAGCATATTCACCTTACCATGATGAGTGGAGCGCTACATTG 660  
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QY 781 CCAAGTCAGGAGATGTTGATGATGATGAATGCTCTTGCAGTTTCTCTGATGATGAT 840  
DB 781 CCAAGTCAGGAGATGTTGATGATGATGAATGCTCTTGCAGTTTCTCTGATGATGAT 840  
QY 841 ATTCTGCTGGATCTCTTCATGAAGATCTGTTGTTATATCAGCGATAGTCTCTTGGAGCA 900  
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QY 901 TCTTCATCATCTTCTGCTACACCTGATGATCTCTGCTGCTGCTGCTGCTGCTGCTGCT 960  
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DB 1381 ATCTGTTTAAACCCAGATTACAACTGCAG 1410

RESULT 2  
LOCUS A68828 -408 bp DNA  
DEFINITION Sequence 5 from Patent WO9802534.  
ACCESSION A68828  
VERSION A68828.1 GI:4759756  
KEYWORDS  
SOURCE unidentified.  
ORGANISM unclassified  
REFERENCE 1 (bases 1 to 1408)  
AUTHORS Kieffer,B.L., Matthes,H.W., Simonin,F.H., Dierich,A. and Lemeur,M.  
TITLE TRANSGENIC ANIMAL WHOSE EXPRESSION OF THE OPIATE RECEPTORS IS MODIFIED  
JOURNAL Patent: WO 9802534-A 22-JAN-1998;  
COMMENT CENTRE NAT RECH SCIENT (FR)  
Other publication FR 2750825 19980116.



Db 981 GGTGGAGGCTCTGGGAGACCTCCACACAGCTGCCTCTCCAGCTATTATTTCG 104C

QY 1130 TATTGCCCTTGGTTATACCAACAGACGCTGAATCCTTGTTCTCTATGCCCTTCGGATGA 1189

Db 1041 TATTGCCCTTGGTTATACCAACAGACGCTGAATCCTTGTTCTCTATGCCCTTCGGATGA 1100

QY 1190 AAAGTTCAAGCGGTGTTTATAGGGAATCTGCTTCCCTATTAAAGATCGGAATGGAGCGCCA 1249

Db 1101 AAAGTTCAAGCGGTGTTTATAGGGAATCTGCTTCCCTATTAAAGATCGGAATGGAGCGCCA 1160

QY 1250 GAGCACCAATAGAGTTAGAAACACAGTTCAGAGATCCTGCTTCCATGAGAGATGGGAGG 1309

Db 1161 GAGCACCAATAGAGTTAGAAACACAGTTCAGAGATCCTGCTTCCATGAGAGATGGGAGG 1220

QY 1313 CATGAATAAGCCAGTATGACTAGTCTGGAAATGCTTCTTAATTTGTTCTCCAGGTAGAGA 1369

Db 1221 CATGAATAAGCCAGTATGACTAGTCTGGAAATGCTTCTTAATTTGTTCTCCAGGTAGAGA 1280

QY 1370 AGAGTTCA 1377

Db 1281 AGAGTTCA 1288

RESULT 4

S778683 1186 bp DNA ROD 26-SEP-1995

LOCUS kappa opiod receptor [mice, Genomic, 1186 nt, segment 3 of 3].

DEFINITION S77872

ACCESSION S77872.1 G:988531

VERSION 3 of 3

KEYWORDS Mus sp.

SEGMENT

SOURCE

ORGANISM

Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.

1 (bases 1 to 1186)

Liu, H.C., Lu, S., Augustin, L.B., Felsheim, R.F., Chen, H.C., Loh, H.H. and Wei, L.N.

Cloning and promoter mapping of mouse kappa opiod receptor gene Biochem. Biophys. Res. Commun. 209 (2), 639-647 (1995)

95251633

TITLE

JOURNAL

MEDLINE

REMARK

entry [NCBI gibbs9 166539] from the original journal article.

This sequence comes from Fig. 2.

Location/Qualifiers

1..1186

/organism="Mus sp."

/db\_xref="taxon:10095"

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CHPYKALDFRPLAKINICIMWLLASSGVISALVAGTQKREDVDFVIESLPDPDE

YSWDLNFKICVFVFVPIVLIIVCTYMLRLKSVRLISGREKDRNLRILKLV

LNVAVFLICPHPIHILVPLVGLISTHSTAAALSSVYFCALGYTNSLSNPVLYAFD

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BASE COUNT 310 a 272 c 254 g 350 t

ORIGIN



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QY 1359 CCAGCTAGAGAGAGTCAATGATCTTGTGTTTAACCCAGATACAACT 1406
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Db 591 CCAGGTAGAGAGAGTCAATGATCTTGTGTTTAACCCAGATACAACT 638
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RESULT 6
MUSMORGD2 488 bp DNA ROD 23-JUN-1999
LOCUS Mouse MORGD gene for kappa-opioid receptor, exon 2.
DEFINITION D31664
ACCESSION D31664.1 GI:543594
VERSION G-protein associated; kappa opioid receptor; opioid drugs and
KEYWORDS peptides-binding; transmembrane protein.
SEGMENT 2 of 3
SOURCE Mus musculus
ORGANISM Mus musculus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE 1 (bases 1 to 488)
AUTHORS Nishi M., Takeshima H., Mori K., Nakagawa K. and Takeuchi T.
TITLE Structure and chromosomal mapping of genes for the mouse
kappa-opioid receptor and an opioid receptor homologue (MOR-C)
JOURNAL Biochem. Biophys. Res. Commun. 205 (2), 1353-1357 (1994)
MEDLINE 95100967
JOURNAL 2 (bases 1 to 488)
AUTHORS Takeshima H.
TITLE Direct Submission
JOURNAL Submitted (28-MAY-1994) to the DDBJ/EMBL/GenBank databases. Hiroshi
Takeshima, Tokyo Institute of Psychiatry, Department of
Neurochemistry, 2-1-8 Kamikitazawa, Setagaya-ku, Tokyo 156, Japan
COMMENT (rel:03-3304-5701(ex:312), Fax:03-3329-8035)
Submitted (28-May-1994) to DDBJ by:
Hiroshi Takeshima
Department of Neurochemistry
Tokyo Institute of Psychiatry
2-1-8 Kamikitazawa, Setagaya-ku
Tokyo 156
Japan
Phone: 03-3304-5701 x312
Fax: 03-3329-8035.

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QY 502 CTTTGGTACTACATATGCCCTTTTCAGAGTCTGTCTACTTGA-CAATCTTGGCCT 561
Db 148 CTTTGGTACTACATATGCCCTTTTCAGAGTCTGTCTACTTGA-CAATCTTGGCCT 207
QY 562 TTGAGATGTGCTATGCAAGATTGCTATTCCTACTACTACTACACATCTTTACAGCA 621
Db 208 TTGAGATGTGCTATGCAAGATTGCTATTCCTACTACTACTACACATCTTTACAGCA 267
QY 622 TATTCACCTTGACCATGATGATGTCGACCGCTACATTTGCTGTGCCACCCCTGTGAAG 681
Db 622 TATTCACCTTGACCATGATGATGTCGACCGCTACATTTGCTGTGCCACCCCTGTGAAG 681

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Db 268 TATTCACCTTGACCATGATGATGTCGACCGCTACATTTGCTGTGTGCCACCCCTGTGAAG 327
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Db 328 CTTTGGACTTCGACACACCTTTGAAGCAAGATCTCAACATCTCATTTGGCTCTTG 387
QY 742 CATCATCTGTGTATATCAGGATAGTCTTGGAGCCACCAAGTCAGGGAAG 795
Db 388 CATCATCTGTGTATATCAGGATAGTCTTGGAGCCACCAAGTCAGGGAAG 441

RESULT 7
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LOCUS kappa opioid receptor [mice, Genomic, 1109 nt, segment 2 of 3].
DEFINITION S77869
ACCESSION S77869.1 GI:998530
VERSION Cloning and promoter mapping of mouse kappa opioid receptor gene
KEYWORDS and Wei L.N.
SEGMENT 2 of 3
SOURCE Mus sp.
ORGANISM Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE 1 (bases 1 to 1109)
AUTHORS Liu H.C., Lu S., Augustin L.B., Felsheim R.F., Chen H.C., Loh H.H.
and Wei L.N.
TITLE Cloning and promoter mapping of mouse kappa opioid receptor gene
JOURNAL Biochem. Biophys. Res. Commun. 209 (2), 639-647 (1995)
MEDLINE 95251663
JOURNAL GenBank staff at the National Library of Medicine created this
REMARK entry [NCBI gibbsq 166534] from the original journal article.
This sequence comes from Fig. 2.
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/db_xref="taxon:10095"
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Matches 354; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 442 GATACAGAGATGAAGACCGCAACCAACATCTACATATTAACTGGCTTTGGCAGATG 501
Db 370 GATACAGAGATGAAGACCGCAACCAACATCTACATATTAACTGGCTTTGGCAGATG 429
QY 502 CTTTGGTACTACATATGCCCTTTTCAGAGTCTGTCTACTTGA-CAATCTTGGCCT 561
Db 430 CTTTGGTACTACATATGCCCTTTTCAGAGTCTGTCTACTTGA-CAATCTTGGCCT 489
QY 562 TTGAGATGTGCTATGCAAGATTGCTATTCCTACTACTACTACACATCTTTACAGCA 621
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Db 670 CATCATCTGTGTATATCAGGATAGTCTTGGAGCCACCAAGTCAGGGAAG 723

RESULT 8
MUSMORGD2 423 bp DNA ROD 23-JUN-1999
LOCUS Mouse MORGD gene for kappa-opioid receptor, exon 2.
DEFINITION

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GenCore version 4.5  
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OM nucleic - nucleic search. using sw model

Run on: February 17, 2000, 10:11:06 ; Search time 66.73 Seconds

(without alignments)  
3749.329 Million cell updates/sec

Title: US-08-455-683-11

Perfect score: 1000

Sequence: 1 AAGAGCAAAATCAGTAATC.....CCAGTATGACTAGTGTGGGA 1300

Scoring table: OLIGO\_NUC

Searched: 311585 seqs, 125096042 residues

Database : N\_Geneseq\_36:\*

Word size : 0

Number of hits that pass the threshold : 623170

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

# SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	949	94.9	1000	1 Q75931	Human kappa opioid
2	433	43.3	1142	1 T12552	Human kappa opioid
3	439	43.9	1284	1 T90998	Human kappa opioid
4	439	43.9	1284	1 T90999	Human kappa opioid
5	252	25.2	1275	1 T92601	Human kappa opioid
6	245	24.5	2447	1 Q56702	Partial sequence o
7	32	3.2	1410	1 Q75926	Mouse kappa opioid
8	32	3.2	2481	1 Q86725	Mammalian kappa op
9	32	3.2	1408	1 V49254	Mouse kappa opiate
10	29	2.9	2216	1 Q56700	Sequence of murine
11	29	2.9	2216	1 Q56656	Murine delta opioi
12	29	2.9	2272	1 Q75927	Mouse delta opioid
13	29	2.9	2218	1 V49253	Mouse delta opiate
14	26	2.6	2070	1 Q79199	Rat mu-subtype opi
15	26	2.6	1618	1 Q89222	Rat mu opioid rece
16	26	2.6	1618	1 Q89223	Transcription regu
17	25	2.5	923	1 Q56703	Partial sequence o
18	25	2.5	1610	1 Q89226	Human mu opioid re
19	25	2.5	2153	1 Q93102	Human mu opiate re
20	25	2.5	2152	1 V61985	Human mu-opioid re
21	25	2.5	2152	1 V61984	Human mu-opioid re
22	25	2.5	2152	1 V61986	Human mu-opioid re
23	25	2.5	2152	1 V61987	Human mu-opioid re
24	25	2.5	2152	1 V61988	Human mu-opioid re
25	25	2.5	2152	1 V61989	Human mu-opioid re
26	25	2.5	2152	1 V61990	Human mu-opioid re
27	25	2.5	2152	1 V61991	Human mu-opioid re
28	25	2.5	2152	1 V61992	Human mu-opioid re
29	25	2.5	2152	1 V61993	Human mu-opioid re
30	25	2.5	2152	1 V61994	Human mu-opioid re
31	25	2.5	2152	1 V61995	Human mu-opioid re
32	21	2.1	1634	1 Q45653	Human kappa opioid
33	20	2.0	1265	1 Q45654	Human somatostatin
34	20	2.0	1265	1 Q45654	Human somatostatin
35	20	2.0	1961	1 Q56705	Partial sequence o
36	20	2.0	1330	1 Q59288	Mouse opioid recep
37	20	2.0	1567	1 Q89233	Rat opioid recepto
38	20	2.0	2600	1 Q89096	Mouse kappa-3 opio
39	20	2.0	2705	1 Q92972	Rat opiorph recept

c 40 20 2.0 20 1 T12552 Human kappa opioid  
c 41 20 2.0 39 1 T12554 Human kappa opioid  
42 20 2.0 1452 1 T90593 Rat orphanin FQ re  
43 20 2.0 1452 1 T90331 Rat methadone-spec  
44 20 2.0 2229 1 V49252 Mouse mu opiate re  
45 20 2.0 1452 1 V56017 Rat methadone-spec

## ALIGNMENTS

RESULT 1

ID Q75931 standard; DNA; 1000 BP.

AC Q75931:

18-AUG-1995 (first entry)

DE Human kappa opioid receptor partial cDNA fragment.

KW Mouse; kappa; delta; mu; opioid receptor; brain; primer: PCR; amplify;

KW transmembrane domain; somatostatin; receptor; human; expression vector;

KW truncate; chimeraic; assay; probe; ss.

OS Homo sapiens.

PH Key Location/Qualifiers

PI cds 102..989

PI /product= partial human kappa opioid receptor

PI W09428:32-A.

PD 08-DEC-1994.

PF 20-MAY-1994; U05747.

PR 20-MAY-1993; US-066296.

PR 30-JUL-1993; US-100694.

PR 05-NOV-1993; US-147592.

PA (ARCH-) ARCH DEV CORP.

PI Bell GI, Reisine T, Yasuda K;

PI WPI: 95-022804/03.

DR P-PSDB: 867672

PI Polynucleotides and peptides derived from opioid receptor

PI polypeptides - for use in therapeutic compositions and in

PI screening assays for useful drug substances.

PS Claim 10; Page 236-239; 300pp; English.

CC The partial nucleotide sequence of the novel human kappa opioid receptor

CC gene. The gene was isolated from a human brain hippocampus cDNA library

CC using a probe from the mouse kappa opioid receptor gene (Q75923). The

CC gene is missing the N-terminal sequence. The C-terminal sequence is

CC very similar to the mouse kappa opioid receptor sequence. Of the

CC C-terminal 293 amino acids, 281 residues are identical and 6 residues

CC have conservative substitutions. The gene encoding the human opioid

CC receptor can be placed in a suitable expression vector for production of

CC the protein in a cell. The opioid receptors thus produced are useful for

CC the development of novel assays designed to select or improve substances,

CC capable of interacting with the opioid receptor proteins, for use in

CC diagnosis, drug design and therapeutic applications.

CC Sequence 1000 BP; 238 A; 253 C; 225 G; 278 T;

QY Query Match 94.9%; Score 949; DS 1; Length 1000;

Best Local Similarity 99.9%; Pred.No. 0;

Matches 999; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 AAGAGCAAAATCAGTAATC...TTAGATACAAAGATGAAGACAG 60

Db 1 AAGAGCAAAATCAGTAATC...TTAGATACAAAGATGAAGACAG 60

QY 61 TTGAAATGGAGGAAATGCTATGTTCTTTTCTTTAGATACAAAGATGAAGACAG 120

Db 61 TTGAAATGGAGGAAATGCTATGTTCTTTTCTTTAGATACAAAGATGAAGACAG 120

QY 121 CAACACAAATTTACATATTAACTGGCTTTGGCAGATGCTTTAGTACTACACCATGTC 180

Db 121 CAACACAAATTTACATATTAACTGGCTTTGGCAGATGCTTTAGTACTACACCATGTC 180

QY 181 CCTTTCAGACACCGTCTACTTGAATGATTCCTGCGCTTTTGGGATGCTGCTGCGAAGA 240

Db 181 CCTTTCAGACACCGTCTACTTGAATGATTCCTGCGCTTTTGGGATGCTGCTGCGAAGA 240

PI	Kieffer B. Simorin F;
DR	WPI; 95-897628/10.
DR	P-PSDB: 388722.
PT	New nucleic acid encoding the human Kappa opioid receptor - useful
PT	in diagnosis and therapy, and for isolating receptor ligands and
PT	modulators
PS	Claim 3: Page 13-15; 30pp; French.
CC	This sequence codes for the human kappa opioid receptor and was
CC	obtained from two overlapping cDNA fragments isolated from a
CC	human placental cDNA library. The fragments were amplified from
CC	the library using PCR primers based on the sequence of human
CC	genomic clones which hybridised with a murine delta receptor cDNA
CC	probe. Nucleotide probes derived from the kappa opioid receptor
CC	coding sequence are useful for diagnosis of neurological, cardio-
CC	vascular and psychiatric disorders associated with opioid
CC	receptors.
SQ	Sequence 1142 BP; 236 A; 337 C; 283 G; 286 T;
Query Match 43.9%; Score 439; DB 1; Length 1142;	
Best Local Similarity 99.1%; Pred. No. 1.2e-209;	
Matches 789; Conservative 0; Mismatches 7; Indels 0; Gaps 0;	
QY	100 GATACACAAAGATGAAGACAGACACCAACATTTACATATTTAACTGGCTTTGGCAGATG 159
Db	257 GATACACAAAGATGAAGACAGACACCAACATTTACATATTTAACTGGCTTTGGCAGATG 316
QY	160 CTTTGTAGTTACTACACCAATGCCCTTTCAGAGTACGGTCTACTTGATGATTTCTTGGCCCT 219
Db	317 CTTTGTAGTTACTACACCAATGCCCTTTCAGAGTACGGTCTACTTGATGATTTCTTGGCCCT 376
QY	220 TTGGGAGTGTGCTGTGCAAGATAGTAATTTCCATTGATTACTTACAACTGTTCCACAGCA 279
Db	377 TTGGGAGTGTGCTGTGCAAGATAGTAATTTCCATTGATTACTTACAACTGTTCCACAGCA 436
QY	280 TCTTCACCTTGACCAATGAGAGCGTGGACCGGTACATCCCTGTGTCACCCGCGTGAAGG 339
Db	437 TCTTCACCTTGACCAATGAGAGCGTGGACCGGTACATCCCTGTGTCACCCGCGTGAAGG 496
QY	340 CTTTGGACTTCGGCACACCCCTTCAAGGCAAGATCAATATCTGCACTGGCTCTGT 399
Db	497 CTTTGGACTTCGGCACACCCCTTCAAGGCAAGATCAATATCTGCACTGGCTCTGT 556
QY	400 CGTCACTCTGTGGCATCTCTGCAA-AGTCTTTGGAGGACCAAAAS-CAGGGAGAGTGTGG 459
Db	557 CGTCACTCTGTGGCATCTCTGCAA-AGTCTTTGGAGGACCAAAAGT-CAGGGAGAGTGTGG 616
QY	460 ATGTCAATGAGTGTCTCTTGGCAGTTCGAGATGATGATGATGATGATGATGATGATGATGAT 519
Db	617 ATGTCAATGAGTGTCTCTTGGCAGTTCGAGATGATGATGATGATGATGATGATGATGATGAT 676
QY	520 TGAAGATCTGGGCTTTCATCTTGTCTGTGATCTGCTGTGATCTGCTGTGATCTGCTGTGCT 579
Db	677 TGAAGATCTGGGCTTTCATCTTGTCTGTGATCTGCTGTGATCTGCTGTGATCTGCTGTGCT 736
QY	580 ACACCTCTGATGATCTCTGCTCTCAAGNNGTCCGGTCTCTCTGCTCTCTGCTCTCTGCTCTCT 539
Db	737 ACACCTCTGATGATCTCTGCTCTCAAGNNGTCCGGTCTCTCTGCTCTCTGCTCTCTGCTCTCT 796
QY	640 ATNNCAACCTGGGTAGATGATGATGATGATGATGATGATGATGATGATGATGATGATGATGAT 699
Db	797 ATNNCAACCTGGGTAGATGATGATGATGATGATGATGATGATGATGATGATGATGATGATGAT 856
QY	700 GCTGGACTCCCATTCATATTCATCTGCTGTGAGGCTCTGGGAGACACCTCCACAGCA 759
Db	857 GCTGGACTCCCATTCATATTCATCTGCTGTGAGGCTCTGGGAGACACCTCCACAGCA 916
QY	760 CAGTGTCTCTCTCAGATATTAATCTTGTGATGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 819
Db	917 CAGTGTCTCTCTCAGATATTAATCTTGTGATGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 976
QY	920 ATCCCATCTCTAGCGCTTCTTGTGATGAAACCTTCAAGCGGTCTTCCCGGAGATCTCTGCT 879

QY	241 TAGTAATTTCCATTGATTAACATGTTTACCAGATCTTTCACCTTGACCAATGATGA 300
Db	241 TAGTAATTTCCATTGATTAACATGTTTACCAGATCTTTCACCTTGACCAATGATGA 300
QY	301 GCGTGGACCGGTAGATTCGCGGTGTGCGACCCCGTGAAGGCTTTGGACTTCGCGACCCCT 360
Db	301 GCGTGGACCGGTAGATTCGCGGTGTGCGACCCCGTGAAGGCTTTGGACTTCGCGACCCCT 360
QY	361 TGAAGGCAAGATCATCAATATCTGCACTTGGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 420
Db	361 TGAAGGCAAGATCATCAATATCTGCACTTGGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 420
QY	421 CAATAGTCCCTTGGAGGACCAAAAGTCAAGGAGGTGTGATGATGATGATGATGATGATGATGATGAT 480
Db	421 CAATAGTCCCTTGGAGGACCAAAAGTCAAGGAGGTGTGATGATGATGATGATGATGATGATGATGAT 480
QY	481 AGTTCCAGAT 540
Db	481 AGTTCCAGAT 540
QY	541 TTGCTTGTGAT 600
Db	541 TTGCTTGTGAT 600
QY	601 TCAAGANNGTCCGGCTCTTCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 660
Db	601 TCAAGANNGTCCGGCTCTTCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 660
QY	661 CCAGACTGCT 720
Db	661 CCAGACTGCT 720
QY	721 TCATCTGCT 780
Db	721 TCATCTGCT 780
QY	781 ACTTCTGATGCT 840
Db	781 ACTTCTGATGCT 840
QY	841 TTGATGAAACTTCAAGCGGTCTTTCGGGACTTCTGCTTTCACCTGGAAGATGAGNATGG 900
Db	841 TTGATGAAACTTCAAGCGGTCTTTCGGGACTTCTGCTTTCACCTGGAAGATGAGNATGG 900
QY	901 AGCGGNAGAGCTAGCAGAGTCCGAAATACAGTTCAGGATCTGCTTACCTGAGGAGGA 960
Db	901 AGCGGNAGAGCTAGCAGAGTCCGAAATACAGTTCAGGATCTGCTTACCTGAGGAGGA 960
QY	961 TCGATGGGAT 1000
Db	961 TCGATGGGAT 1000

RESULT 2

T12550

ID T12550 standard; cDNA; 1142 BP.

AC T12550;

DT 03-SEP-1996 (first entry)

DE Human kappa opioid receptor cDNA.

KW	Human; kappa opioid receptor; psychiatric disorder; cardiovascular;
KW	neurology; diagnosis; ds.
OS	Homo sapiens.
FH	Key
FT	1. .1142
FT	Location/Qualifiers
FT	cds
FT	/tag= a
FT	/product= kappa opioid receptor
FT	/note= "incomplete termination codon"
PN	WC9601898-AL.
PD	25-JAN-1996.
PR	07-JUL-1995; PF F00912.
PR	11-JUL-1994; FR F008531.
PA	(UYST-) CNIV PASTEUR STRASBOURG LOUIS.



Db 977 ATCCATCTCTAGCGCTTTCTTCTGATGAAGAACTTCAAGCGGTGTTCCGGGACTTCGTCT 1036  
 QY 880 TTCCACTGAGATGAG 895  
 Db 1037 TTCCACTGAGATGAG 1052

RESULT 3

T90998  
 ID T90998 standard; cDNA; 1143 BP.  
 AC T90998;  
 DT 14-APR-1998 (first entry)  
 DE Human kappa opioid receptor cDNA.  
 KW Selective target cell activation; G protein-coupled receptor;  
 KW RASSL; gene therapy; cell proliferation; kappa opioid receptor;  
 KW human; transgenic animal; arrhythmia; bone disease; seizure;  
 KW vascular contraction; disease model; ss.  
 OS Homo sapiens.  
 PN W09735478-A1.  
 PD 02-OCT-1997.  
 PF 25-MAR-1997; U05334.  
 PR 26-MAR-1996; US-622345.  
 PA (REGC) UNIV CALIFORNIA.  
 PI Conklin BR;  
 DR MPI; 97-502739/46.  
 DR P-PSDB; W30297.  
 PT Selective activation of target cell expressing modified G protein coupled receptor - allows control of cellular proliferation, especially for amplification of transfected cells in gene therapy Example 1; Page 74-76; 117pp; English.  
 PS This cDNA sequence comprises the coding region for human kappa opioid receptor (KOR, see W30297), a G protein-coupled receptor implicated in neurotransmission. A novel method for selectively activating a target cell (EC) comprises: (i) introducing into the cell a nucleic acid sequence (1) that expresses a G protein-coupled receptor (A) modified to be activated superiorly by a synthetic ligand (RASSL); and (ii) exposing the transfected cell to small synthetic molecules (B) that bind to and activate (A), inducing the G protein coupled cellular response associated with receptor activation. (A) has: (a) decreased binding affinity for a selected natural ligand of the native receptor; (b) binding affinity for (B); and (c) is activated by binding (B) sufficiently to produce the required cellular response. Also new are: (1) transgenic cells including heterologous (1) in the genome; (2) cellular implants comprising a TC transfected with (1); (3) isolated (1); and (4) transgenic non-human animals expressing (A). Activation of (A) results, in vitro or in vivo, in cellular proliferation, or secretion of a cellular product, particularly a heterologous therapeutic protein encoded by a second inserted nucleic acid sequence. Particularly it is used to expand the relatively few cells that are successfully transfected during gene therapy procedures. Other responses that can be regulated are cell migration and contraction, or pigment production. In transgenic animals, expression or stimulation of (A) is designed to develop cardiac arrhythmia, symptoms of bone disease, seizures, vascular contractions, dementia, neurodegeneration etc., for use as models of these diseases (claimed). The transgenic animals are also used for production of improved food products (e.g. increased calcium content in eggshells or altered fat/lean ratios) or to control fertility or induce labour. A RASSL derived from KOR, designated RASSL OR1 (see W30299), was generated by mutation of the KOR cDNA sequence.  
 SQ Sequence 1143 BP; 237 A; 337 C; 283 G; 286 T;

Query Match: 43.9%; Score 439; DB 1; Length 1143;  
 Best Local Similarity 99.1%; Pred. No. 1.2e-209;  
 Matches 789; Conservative 0; Mismatches 7; Indels 0; Gaps 0;

QY 100 GATACACAAAGATGAGACAGCAACCAACATTTACATATTATTAACCTGGCTTGGCAGATG 159  
 257 GATACACAAAGATGAGACAGCAACCAACATTTACATATTATTAACCTGGCTTGGCAGATG 316

QY 160 CTTTGGTCTTACACCAATGCGCTTTCAGAGTACGGTCTACTTGTATGATTCCTGGGCTT 219  
 Db 317 CTTTGGTCTTACACCAATGCGCTTTCAGAGTACGGTCTACTTGTATGATTCCTGGGCTT 376  
 QY 220 TTGGGATGTCTGTGCAAGATAGTAATTTCCATTGATTAACAACATGTTACACAGA 273  
 Db 377 TTGGGATGTCTGTGCAAGATAGTAATTTCCATTGATTAACAACATGTTACACAGA 436  
 QY 280 TCTTCACCTTGACCATGATGAGCGTGGACCGCTACATTTGCCCGTGGCCACCCCGGAGG 339  
 Db 437 TCTTCACCTTGACCATGATGAGCGTGGACCGCTACATTTGCCCGTGGCCACCCCGGAGG 496  
 QY 340 CTTTGGGACTTCCGCAACCTTGAAGCAAAAGATCAATATCTGCAATCTGGTGTCTGT 399  
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 Db 557 CGTCATCTGTTGGCATCTCTGCAATAGTCCCTTGGAGGACCAAAAGTCAGGGAAGTGTG 616  
 QY 460 ATGTCAATGATGCTGCTTGCGASTTCCAGATGATGACTACTCTCTGTGGACCTCTTCA 519  
 Db 617 ATGTCAATGATGCTGCTTGCGASTTCCAGATGATGACTACTCTCTGTGGACCTCTTCA 576  
 QY 520 TGAAGATCTGGCTTCTCATCTTGGCTTGGTATCCCTTGGTCTCTCATCAATCTGTCT 579  
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 QY 640 ATNCAACCTCGTAGGATCAACAGATGCTCTGGTGGTGGCAGTCTTCGTCTCT 699  
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 QY 700 GCTGGACTCCCATTCACATATTCCTTGGTGGAGGCTCTGGGAGCACCCTCCACAGCA 759  
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 QY 760 CAGTGTCTCTCAGTATTAATCTTGCATCGCTTAGGCTATACCAACAGTAGCTTGA 819  
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 QY 820 ATCCCATCTCTACGCTTCTTGCATGAAACTTCAACGGTGTTCGGGACCTCTCT 879  
 Db 977 ATCCCATCTCTACGCTTCTTGCATGAAACTTCAACGGTGTTCGGGACCTCTCT 1036

RESULT 4

T90999  
 ID T90999 standard; cDNA; 1284 BP.  
 AC T90999;  
 DT 14-APR-1998 (first entry)  
 DE Human kappa opioid receptor modified cDNA.  
 KW Selective target cell activation; G protein-coupled receptor;  
 KW RASSL; gene therapy; cell proliferation; kappa opioid receptor;  
 KW human; transgenic animal; arrhythmia; bone disease; seizure;  
 KW vascular contraction; disease model; ss.  
 OS Chimeric - Homo sapiens.  
 OS Chimeric - Synthetic.  
 FH Key Location/Qualifiers  
 Key s-g\_peptide 1..90  
 FT /tag= a  
 FT /product= prolactin signal sequence  
 FT mat\_peptide 91..1284  
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 FT /product= FLAG-KOR-HA fusion  
 PN W09735478-A1.



ACCESSION D31663  
 VERSION D31663.1 GI:1643593  
 KEYWORDS G-protein associated; kappa opioid receptor; opioid drugs and peptides-binding; transmembrane protein.  
 SEGMENT 1 of 3  
 SOURCE Mus musculus  
 ORGANISM Mus musculus  
 Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.  
 Nishi, M., Takeshima, H., Mori, M., Nakagawa, K. and Takeuchi, T.  
 Structure and chromosomal mapping of genes for the mouse kappa-opioid receptor and an opioid receptor homologue (MOR-C)  
 Biochem. Biophys. Res. Commun. 205 (2), 1353-1357 (1994)  
 JOURNAL 9510097  
 MEDLINE 2 (bases 1 to 423)  
 REFERENCE Direct Submission  
 AUTHORS Takeshima, H.  
 TITLE Submitted (28-MAY-1994) to the DDBJ/EMBL/GenBank databases. Hiroshi Takeshima, Tokyo Institute of Psychiatry, Department of Neurochemistry, 2-1-8 Kamikitazawa, Setagaya-ku, Tokyo 156, Japan. (Tel: 03-3304-5701 (ex.312), Fax: 03-3329-8035)  
 COMMENT Submitted (28-May-1994) to DDBJ by: Hiroshi Takeshima  
 Department of Neurochemistry  
 Tokyo Institute of Psychiatry  
 2-1-8 Kamikitazawa, Setagaya-ku  
 Tokyo 156  
 Japan  
 Phone: 03-3304-5701 x312  
 Fax: 03-3329-8035  
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 Db 155 CTGCTCTCCCATGCTTGCTCTCCGCCACAGCAGCTGTGTTCCGCAACTGGGCAGA 214  
 QY 290 ATCCGACAGTAATGGCAGTGGGCTCAGAGGATCAGCAGTGGTCCGCGCACATCTC 349  
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 QY 410 GGGCAATTCCTGTCATGTTTGTATCATCCG 442  
 Db 335 GGGCAATTCCTGTCATGTTTGTATCATCCG 367  
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 LOCUS kappa opioid receptor [mice, Genomic, 2074 nt, segment 1 of 3].  
 DEFINITION  
 ACCESSION S77868

VERSION S77868.1 GI:998529  
 KEYWORDS 1 of 3  
 SEGMENT Mus sp.  
 SOURCE Mus sp.  
 ORGANISM Mus sp.  
 Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.  
 Lin, H.C., Lu, S., Augustin, L.B., Felsheim, R.F., Chen, H.C., Loh, H.H., and Wei, L.N.  
 Cloning and promoter mapping of mouse kappa opioid receptor gene  
 Biochem. Biophys. Res. Commun. 209 (2), 639-647 (1995)  
 JOURNAL 95251663  
 MEDLINE  
 REMARK GenBank staff at the National Library of Medicine created this entry [NCBI gibbsg 166530] from the original journal article. This sequence comes from Fig. 2.  
 FEATURES  
 Location/Qualifiers  
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 RESULT 10  
 MMU16998  
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 ACCESSION U16998  
 VERSION U16998.1 GI:595936  
 KEYWORDS house mouse.  
 SOURCE Mus musculus  
 ORGANISM Mus musculus  
 Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.  
 1 (bases 1 to 432)  
 REFERENCE  
 AUTHORS Mapping of the human kappa opioid receptor gene to chromosome 8q11.2-q12; no evidence for multiple kappa opioid receptor genes  
 TITLE Unpublished  
 JOURNAL 2 (bases 1 to 432)  
 REFERENCE  
 AUTHORS Grandy, D.K.  
 TITLE Direct Submission  
 JOURNAL Submitted (07-NOV-1994) David K. Grandy, Vollum Institute, Oregon Health Sciences, University, 3181 S.W. Sam Jackson Park Road, Portland, OR 97201, USA  
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 Location/Qualifiers  
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QY 696 ACACCTTTGAAGCAAGAGATCATCAACATCTGCATTTGGCTCTCTGGCATCATCTGTGTT 755
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RESULT 15
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LOCUS 1273 bp mRNA ROD 04-FEB-1999
DEFINITION Rat mRNA for opioid receptor, complete cds.
ACCESSION D16534
VERSION D16534.1 GI:409390
KEYWORDS G-protein coupled receptor; opioid receptor; transmembrane protein.
SOURCE Rattus norvegicus (strain Wistar) adult brain cDNA to mRNA, clone
PROK2.
ORGANISM Rattus norvegicus
Eukaryota; Metazoa; Chordata; Vertebrata; Mammalia; Eutheria;
Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
REFERENCE 1 (bases 1 to 1273)
Takeshima,H.
Direct Submission
Submitted (19-JUN-1993) to the DDBJ/EMBL/GenBank databases. Hiroshi
Takeshima, International Institute for Advanced Studies; c/o
Shimadzu Corporation N-80, 1 Nishinokyo-Kuwahara-cho, Kyoto 604,
Japan (Tel:075-823-1208, Fax:075-811-8186);
2 (bases 1 to 1273)
Nishi,M., Takeshima,H., Fukuda,K., Kato,S. and Mori,K.
cDNA cloning and pharmacological characterization of an opioid
receptor with high affinities for kappa-subtype-selective ligands
FEBS Lett. 330 (1), 77-80 (1993)
JOURNAL 93380575
MEDLINE
COMMENT Submitted (19-JUN-1993) to DDBJ by:
Hiroshi Takeshima
International Institute

```

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Japan  
Phone: 075-823-1208  
Fax: 075-811-8186.

FEATURES  
source  
1. 1273  
Location/Qualifiers  
/organism="Rattus norvegicus"  
/strain="Wistar"  
/db\_xref="taxon:10116"  
/dev\_stage="adult"  
/tissue\_type="brain"  
49..1191  
/gene="ROR-D"  
49..1191  
/gene="ROR-D"  
/codon\_start=1  
/product="opioid receptor"  
/protein\_id="BAA03971.1"  
/db\_xref="GI:415310"  
/translation="MESPIQIFRGPETCAPSACLLPNSWFPNNAESDSNSVGS  
EDQLEPAHISPAIPVITAVYVGVVGLVNSLVMEVIRYTKMTATNIYFNLA  
LADALVTTPFQSAVLMNSPFGDLCKIVISIDYINMFISIFLTMMSVDRIYIA  
CHPKALDFRPLKAKINICWILLASSVGSIAVLGGTKVREDVDIECSLQFPDDE  
YSWDLFMKICVFVAFVPIVLIIVCTIMELRLKSVRLSGREKDRNLRRIKLV  
LVNVAFLICHTPIHIFILVEALGSIHSIAVLSYVFCJALGYNLSNLPVLYAFLD  
ENFKRCDFEFPKMRMEROSTNRVNTVODPASMRDVGGMKPV"

gene

CDS

BASE COUNT 278 a 340 c 294 g 361 t  
ORIGIN

Query Match 8.9%; Score 125; DB 12; Length 1273;  
Best Local Similarity 98.9%; Pred. No. 4.1e-61;  
Matches 275; Conservative 0; Mismatches 3; Indels 0; Gaps 0;  
QY 576 TCGAAGATTGTCATTCCTGACCTACTACACATGTTTACCAGCATATTCACCTTGACC 635  
DB 439 TCGAAGATTGTCATTCCTGACCTACTACACATGTTTACCAGCATATTCACCTTGACC 498  
QY 636 ATGATGAGTGTGGACCGCTACATTCGCTGTGCGCCACCTGTGAAAGCTTTGGACTTCGA 695  
DB 499 ATGATGAGTGTGGACCGCTACATTCGCTGTGCGCCACCTGTGAAAGCTTTGGACTTCGA 558  
QY 696 ACACCTTTGAAGCAAGAGATCATCAACATCTGCATTTGGCTCTCTGGCATCATCTGTGTT 755  
DB 559 ACACCTTTGAAGCAAGAGATCATCAACATCTGCATTTGGCTCTCTGGCATCATCTGTGTT 618  
QY 756 ATATCAGCATAGTCTCTGGAGCCACCAAGTCAGGAAGATGTGGATGTCATTTGAATGC 815  
DB 619 ATATCAGCATAGTCTCTGGAGCCACCAAGTCAGGAAGATGTGGATGTCATTTGAATGC 678  
QY 816 TCCTTCAGTTTCCTGATGATGAATATTCCTGGTGGGA 853  
DB 679 TCCTTCAGTTTCCTGATGATGAATATTCCTGGTGGGA 716

Search completed: February 17, 2000, 10:09:49  
Job time: 1904 sec

Thu Feb 17 13:27:14 2000

us-08-455-683-1.feb17oligo.rge

CC human KOR cDNA (see T90999) and includes flanking sequences that  
 CC encode signal and epitope peptides to facilitate the detection and  
 CC purification of recombinant ORL. A novel method for selectively  
 CC activating a target cell (TC) comprises: (i) introducing into the  
 CC cell a nucleic acid sequence (I) that expresses a BASSL (A) and  
 CC (ii) exposing the transfected cell to small synthetic molecules  
 CC (B) that bind to and activate (A), inducing the G protein coupled  
 CC cellular response associated with receptor activation. (A) has: (a)  
 CC decreased binding affinity for a selected natural ligand of the  
 CC native receptor; (b) binding affinity for (B); and (c) is activated  
 CC by binding (B) sufficiently to produce the required cellular response.  
 CC Also new are: transgenic cells including heterologous (I) in the  
 CC genome; cellular implants comprising a TC transfected with (I);  
 CC isolated (I); and transgenic animals expressing (A). Activation of  
 CC (A) results, in vitro or in vivo, in cellular proliferation, or  
 CC secretion of a cellular product, particularly a heterologous  
 CC therapeutic protein encoded by a second inserted nucleic acid  
 CC sequence. Particularly it is used to expand the relatively few  
 CC cells that are successfully transfected during gene therapy  
 CC procedures. Other responses that can be regulated are cell  
 CC migration and contraction, or pigment production. In transgenic  
 CC animals, expression or stimulation of (A) is designed to develop  
 CC cardiac arrhythmia, symptoms of bone disease, seizures, vascular  
 CC contractions, dementia, neurodegeneration, etc., for use as models  
 CC of these diseases (claimed). The transgenic animals are also used  
 CC for production of improved food products (e.g. increased calcium  
 CC content in eggshells or altered fat/lean ratios) or to control  
 CC fertility or induce labour.  
 CC Sequence 1275 BP: 266 A: 373 C: 318 G: 318 T:

Query Match 25.2%, Score 252; DB 1: Length 1275;  
 Best Local Similarity 100.0%; Pred. No. 2.4e-116;  
 Matches 252; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 644 CAACCTCGTAGGATACACACAGCTGGTCTGGTGGTGGGAGCTTCGTCGTCGCTG 703  
 DB 903 CAACCTCGTAGGATACACACAGCTGGTCTGGTGGTGGGAGCTTCGTCGTCGCTG 962  
 QY 704 GACTCCCATTCACATATTCATTCCTGGTGGGAGCTTCGTCGTCGCTG 763  
 DB 963 GACTCCCATTCACATATTCATTCCTGGTGGGAGCTTCGTCGTCGCTG 1022  
 QY 764 TSCCTCTCCAGCTATACCTTCCTGCATCGCCCTTGGTGGGAGCTTCGTCGTCGCTG 823  
 DB 1023 TSCCTCTCCAGCTATACCTTCCTGCATCGCCCTTGGTGGGAGCTTCGTCGTCGCTG 1082  
 QY 824 CATCTCTAGCCCTTCTTGTGATGAACCTTCAGCGGCTTGGGAGCTTCGTCGTCGCTG 883  
 DB 1083 CATCTCTAGCCCTTCTTGTGATGAACCTTCAGCGGCTTGGGAGCTTCGTCGTCGCTG 1142  
 QY 884 ACTGAAGATGAG 895  
 DB 1143 ACTGAAGATGAG 1154

RESULT 6  
 Q56702  
 ID Q56702 standard; DNA: 2447 BP.  
 AC Q56702  
 DE 15-SEP-1994 (first entry)  
 DE Partial sequence of the human kappa opioid receptor  
 DE genomic clone H14 (KOR).  
 KW Opioid receptor; morphine; opiate; ss.  
 PN Homo sapiens.  
 PN WO9404552-A.  
 PD 03-MAR-1994.  
 PF 13-AUG-1993; U07665.  
 PR 13-AUG-1992; US-929200.  
 PA (REGC) UNIV CALIFORNIA.  
 PI Edwards RU, Evans CU, Kaufman D, Keith DE;  
 DR WPI: 94-083099/10.  
 PT DNA encoding opioid receptors and antibodies against this

PI receptor - used to express and locate these receptors, and screen  
 PI cpts. for opioid (ant)agonist activity  
 PS Example; Fig 8b; 74pp; English.  
 CC To isolate opiate receptor genomic clones, 300,000 human genomic  
 CC clones and a similar number of mouse genomic clones were probed  
 CC with the 1.1 kb mouse delta opioid receptor clone DOR-1 Pst/XbaI  
 CC fragment. One mouse clone and three human genomic clones were  
 CC isolated. The 3 human clones had very different EcoRI patterns  
 CC which indicated that three different genes were represented by the  
 CC human genomic clones which were designated H3, H14 and H20. H14 maps  
 CC to chromosome 8. It encodes the human kappa opioid receptor.  
 CC Sequence 2447 BP: 683 A: 512 C: 498 G: 747 T;

Query Match 24.5%, Score 245; DB 1: Length 2447;  
 Best Local Similarity 100.0%; Pred. No. 7.5e-113;  
 Matches 245; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 211 CCTGCGCTTTGGGATGCTGCTGCAAGATAGTAAATTCGATGATACACATGT 270  
 DB 2 CCTGCGCTTTGGGATGCTGCTGCAAGATAGTAAATTCGATGATACACATGT 60  
 QY 271 TCACACGATCTTCACCTTGACCATGATGAGGCGGACGCTACATTCGCTGCGACCC 330  
 DB 61 TCACACGATCTTCACCTTGACCATGATGAGGCGGACGCTACATTCGCTGCGACCC 120  
 QY 331 CCGTGAAGGCTTTGGACCTTCGACACCCCTTGAAGGCAAGATCATCATATCTGCATCT 390  
 DB 121 CCGTGAAGGCTTTGGACCTTCGACACCCCTTGAAGGCAAGATCATCATATCTGCATCT 180  
 QY 391 GCGTGTCTGCTCATCTCTGTCATCTCTGCAATAGTCTCTGGAGGCGACCAAGTCAGG 450  
 DB 181 GCGTGTCTGCTCATCTCTGTCATCTCTGCAATAGTCTCTGGAGGCGACCAAGTCAGG 240  
 QY 451 AAGGT 455  
 DB 241 AAGGT 245

RESULT 7  
 Q75926  
 ID Q75926 standard; DNA: 1410 BP.  
 AC Q75926  
 DE 17-AUG-1995 (first entry)  
 DE Mouse kappa opioid receptor MORK1 cDNA.  
 KW Mouse; kappa; delta; mu; opioid receptor; brain; primer; PCR; amplify;  
 KW Transmembrane domain; somatostatin; receptor; human; expression vector;  
 KW Truncate; chimeraic; assay; probe; ss.  
 OS Mus musculus.  
 FT Key Location/Qualifiers  
 FT CDS 186..1328  
 FT /\*tag= a  
 FT /product= mouse kappa opioid receptor  
 PN WO9428132-A.  
 PD 08-DEC-1994.  
 PF 20-MAY-1994; U05747.  
 PR 30-MAY-1993; US-066296.  
 PR 30-JUL-1993; US-100694.  
 PR 05-NOV-1993; US-147592.  
 PA (ARCH-) ARCH DEV CORP.  
 PI Bell GI, Reisine T, Yasuda K;  
 DR WPI: 95-022804/03.  
 DR P-PSDB: R67669.

PI polynucleotides and peptides derived from opioid receptor  
 PI screening assays for useful drug substances.  
 PS Claim 10; Page 207-211, 300pp; English.  
 CC The nucleotide sequence of the novel mouse kappa opioid receptor gene  
 CC morph. The gene was isolated from a mouse brain cDNA library using a  
 CC fragment amplified from the cDNA library with primers Q75929-30) as a  
 CC probe. The primers are based on the conserved sequences present in the  
 CC second and third transmembrane domains of somatostatin (SRIF) receptor  
 CC subtypes SSR1, SSR2 and SSR3. The 1.2 kb PstI fragment from the mouse



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      132  TACATATTAAACCTGGCTTTGGCAGATGCTTT 163
      |||||
      399  TACATATTAAACCTGGCTTTGGCAGATGCTTT 430

```

03-MAR-1994. PD  
13-AUG-1993: T07665. PF  
13-AUG-1992: CS-929200. PR  
(REG ) UNIV CALIFORNIA. PA  
Edwards RH, Evans CJ, Kaufman D, Keith DE. PI  
WPI; 94-083099/10. DR  
P-PSDB; R49629. DR  
DNA encoding opioid receptors and antibodies against this PT  
receptor - used to express and locate these receptors, and screen PT  
cpds. for opioid (antagonist) activity PT  
claim 1; Fig 5; 74pp: English PS  
A cDNA library was constructed using mRNA isolated from the NG109-15 PS  
cell line. A single clone, named the DOR-1 clone was isolated. CC  
Comparisons with known sequences in Genbank showed highest homology CC  
between DOR-1 and the G-protein-coupled somatostatin receptor. Other CC  
features of the DOR-1 clone AA sequence deduced from the cDNA CC  
sequence include 3 consensus glycosylation sites at residues 18 and CC

CC 33 (predicted to be in the extracellular N-terminal domain), and at  
 CC residue 310 (close to the C-terminus and predicted to be  
 CC intracellular). Phosphokinase C consensus sites are present within  
 CC predicted intracellular domains, at residues 242, 255, 344 & 352.  
 CC Seven putative membrane-spanning regions were identified. The DOR-1  
 CC clone produces a delta receptor with a predicted mol. wt. of 40,558  
 CC kDa prior to post-translational modifications.  
 SQ Sequence 1821 BP; 339 A; 559 C; 382 T;

Query Match 2.9%; Score 29; DB 1; Length 1821;  
 Best Local Similarity 100.0%; Pred. No. 4.5e-05;  
 Matches 29; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 291 ACCATGATGAGCGTGACCGTACATTGC 319  
 DB 446 ACCATGATGAGCGTGACCGTACATTGC 474

## RESULT 11

Q66656  
 ID Q66656 standard; cDNA: 2215 BP.

DE 19-JAN-1995 (first entry)  
 DE Murine delta opioid receptor coding sequence.  
 KW delta opioid; enkephalin; receptor; mouse; murine; analgesic; pain;  
 KW drug addiction; neurological disorder; psychiatric; disorder;  
 KW cardiovascular disorder; ds.  
 OS Mus musculus.

FT Key Location/Qualifiers  
 FT CDS 58..1174  
 FT /\*tag= a  
 FT /product= opioid\_receptor

FR2697850-A.

DE 13-MAY-1994.  
 PE 10-NOV-1992; 013526.  
 PR 10-NOV-1992; FR-013526.  
 PA (VIST-) UNIV PASTEUR STRASBOURG LOUIS.

PI Kieffer B;

DR WPI: 94-178255/22.

DR P-PSDB: R65503.

PT New nucleic acid encoding opioid receptor - and related  
 PT polypeptide, antisense nucleic acid, probes, recombinant cells  
 PT and ligands, useful in diagnosis and treatment of e.g.

PT neurological disorders

PS Claim 3; Page 16-18; 29pp; French.

CC A cDNA bank constructed from hybridoma NG108-15, was used to  
 CC transfect COS-1 cells. The cells were tested for ability to bind  
 CC tritium-labelled Tyr-D-Thr-Gly-Phe-Leu-Thr, in the presence or  
 CC absence of the opioid antagonist naloxone. Clone K56 was isolated  
 CC from a positive colony and found to contain a 2216bp insert. This  
 CC cDNA encodes a delta opioid (enkephalin) receptor with apparent  
 CC dissociation constant 1.4nM and Bmax 3.9-6.4 fmole/mg protein.  
 SQ Sequence 2215 BP; 460 A; 547 C; 649 G; 460 T;

Query Match 2.9%; Score 29; DB 1; Length 2215;  
 Best Local Similarity 100.0%; Pred. No. 4.5e-05;  
 Matches 29; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 291 ACCATGATGAGCGTGACCGTACATTGC 319  
 DB 476 ACCATGATGAGCGTGACCGTACATTGC 504

## RESULT 12

Q75927  
 ID Q75927 standard; DNA: 2272 BP.

AC Q75927;

DE 17-AUG-1995 (first entry)  
 DE Mouse delta opioid receptor cDNA.

KW Mouse; kappa; delta; mu; opioid receptor; brain; primer; PCR; amplify;  
 KW transmembrane domain; somatostatin; receptor; human; expression vector;

KW truncate; chimeric; assay; probe; ss.  
 CS Mus musculus.  
 FH Key Location/Qualifiers  
 FT CDS 12..1130  
 FT /\*tag= a  
 FT /product= mouse delta opioid receptor  
 PN W09428132-A.  
 PD 08-DEC-1994.  
 PF 20-MAY-1994; CC5747.  
 PR 20-MAY-1993; CS-066296.  
 PR 30-JUL-1993; CS-100694.  
 PR 05-NOV-1993; CS-147592.  
 PA (ARCH-) ARCH DEV CORP.  
 PI Bell GJ, Reisine T, Yasuda K;  
 DR WPI: 95-022804/03.  
 DR P-PSDB: R67670.

PT Polynucleotides and peptides derived from opioid receptor

PT polypeptides - for use in therapeutic compositions and in

PT screening assays for useful drug substances.

PS Claim 6; Page 215-221; 300pp; English.

CC The nucleotide sequence of the novel mouse delta opioid receptor gene  
 CC MOR1. The gene was isolated from a mouse brain cDNA library using a  
 CC fragment (amplified from the cDNA library with primers Q75929-30) as a  
 CC probe. The primers are based on the conserved sequences present in the  
 CC second and third transmembrane domains of somatostatin (Sst) receptor  
 CC subtypes SSTR1, SSTR2 and SSTR3. The 1.3 kb EcoRI-SacI fragment from the  
 CC mouse delta opioid receptor clone, lambda m1-2, was subcloned into the  
 CC CMV promoter-based expression vector pCMV-6c. The resultant construct  
 CC pCMV-m1-2 was transfected into COS-1 cells for protein production. The  
 CC gene encoding the opioid receptor can be used to produce complete,  
 CC truncated or chimeric opioid receptor proteins. The opioid receptors  
 CC thus produced are useful for the development of novel assays designed to  
 CC select or improve substances, capable of interacting with the opioid  
 CC receptor proteins, for use in diagnosis, drug design and therapeutic  
 CC applications.  
 SQ Sequence 2272 BP; 485 A; 665 C; 550 G; 472 T;

## Query Match

Best Local Similarity 2.9%; Score 29; DB 1; Length 2272;

Matches 29; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 291 ACCATGATGAGCGTGACCGTACATTGC 319

DB 429 ACCATGATGAGCGTGACCGTACATTGC 457

## RESULT 13

V49253  
 ID V49253 standard; DNA: 2218 BP.

AC V49253;

DI 28-OCT-1998 (first entry)

DE Mouse delta opiate receptor gene.

KW Mouse; delta opiate receptor; transgenic animal; mammal; identification;  
 KW exon; nervous tissue; pain; drug addiction; transplant rejection;  
 KW immunosuppressant; analgesic; morphine; side effect; ds.

OS Mus sp.

FT Key Location/Qualifiers

FT CDS 58..1176

FT /\*tag= a

FT /product= "delta opiate receptor"

PN W09802534-A2.

PD 22-JAN-1998.

PF 11-JUL-1997; F01282.

PR 15-JUL-1996; FR-008810.

PA (CNRS ) CENT NAT RECH SCI.

PI Dierich A, Kieffer BL, LeMeur M, Matthes HWD, Simonin FH;

DR WPI: 98-110582/10.

DR P-PSDB: W44939.

PT Transgenic animals defective in one type of opioid receptor - used  
 PT to identify agents for treatment of pain, drug addiction and  
 PT transplant rejection, lacking side effects of known opiate(s)  
 PS Disclosure; Fig 12; 58pp; French.

CC This sequence represents the gene encoding the mouse delta opiate  
 CC receptor protein. The sequence is used to generate a transgenic  
 CC non-human mammal for identifying agents for treating disorders  
 CC associated with opiate receptors. In the mammal, the expression of  
 CC the gene encoding the opiate receptor is modified, particularly by  
 CC the deletion of an exon and/or insertion of a marker gene, e.g. the  
 CC neomycin resistance gene, into the sequence. Especially the expression  
 CC of the gene is altered in nervous tissue. The agents are potentially  
 CC useful for treating severe pain (chronic or acute), drug addiction and/or  
 CC prevention or treatment of transplant rejection (as immunosuppressants).  
 CC The method may isolate and identify powerful analgesics that lack  
 CC morphine-like side effects.  
 CC Sequence 2218 BP: 460 A; 648 C; 650 G; 460 T;

Query Match 2.6%; Score 29; DB 1; Length 2218;  
 Best Local Similarity 100.0%; Pred. No. 4.5e-05;  
 Matches 29; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 291 ACCATGATGAGCGTGACCGCTACATGCC 319  
 |||||  
 DB 475 ACCATGATGAGCGTGACCGCTACATGCC 503

## RESULT 14

QY9199 standard: cDNA; 2070 BP.

AC Q79199;  
 DT 19-APR-1995 (first entry)  
 DE Rat mu-subtype opiate receptor cDNA.  
 KW Mu-subtype opiate receptor; MSOR; drug addiction; ds.  
 OS Rattus rattus.

FH Key Location/Qualifiers  
 FT cds 83..1154  
 FT /\*tag= a

FT /product= Mu-subtype opiate receptor

PN EP-612845-A.  
 PD 31-AUG-1994.  
 PF 09-FEB-1994; 101968.  
 PR 26-FEB-1993; JS-026140.  
 PA (AMCY ) AMERICAN CYANAMID CO.  
 PI Corbett MJ, Eppler CM, Shieh H, Zysk JR;  
 DR WPI: 94-285963/33.  
 DR P-PSDB: R65188.  
 PT Pure mu-type opiate receptor protein - and nucleic acid coding  
 PT for it

PS Claim 1; Fig 11; 39pp; English.  
 CC R65188 is the rat mu-subtype opiate receptor protein purified  
 CC from rat brain membranes, with bioninyl-B-endorphin (R56666)  
 CC as its ligand. It is encoded by the nucleotide sequence Q79199  
 CC which was synthesised using Q71022 and Q71023 as PCR primers.  
 CC R65188 is useful for identifying other receptor subtypes, for  
 CC screening new opiate ligands, and for studying mechanisms of  
 CC opiate action, e.g. drug addiction.  
 SQ Sequence 2070 BP: 526 A; 564 C; 423 G; 557 T;

Query Match 2.6%; Score 26; DB 1; Length 2070;  
 Best Local Similarity 100.0%; Pred. No. 0.0014;  
 Matches 26; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 255 GATTACTACACATGTTCCACGAGCAT 280  
 |||||  
 DB 404 GATTACTACACATGTTCCACGAGCAT 429

## RESULT 15

Q89222 standard: cDNA; 1618 BP.

AC Q89222;  
 DT 20-OCT-1995 (first entry)  
 DE Rat mu opiate receptor cDNA.  
 KW Mu opiate receptor; MOR-1; gene therapy; diagnostic; ss.

OS Rattus sp.  
 FH Key Location/Qualifiers  
 FT cds 214..1410  
 FT /\*tag= a

PN WO9507983-A.  
 PD 23-MAR-1995.  
 PF 13-SEP-1994; J10358.  
 PR 13-SEP-1993; JS-120601.  
 PA (INDV ) UNIV INDIANA FOUND.

PI YU L;  
 DR WPI: 95-131351/17.  
 DR P-PSDB: R71964.

PT New nucleic acid encoding new human mu opiate receptor - and  
 PT related vectors, transformed cells, antibodies etc., useful in  
 PT diagnosis, treatment and drug screening.  
 PS Disclosure; Page 190-194; 266pp; English.  
 CC A 365 bp fragment of the mouse delta opiate receptor was used to  
 CC screen a rat brain cDNA library under low stringency conditions.  
 CC One positive clone included the sequence given in Q89222, encoding a  
 CC mu opiate receptor, MOR-1 (R71964). MOR-1 was stably expressed in  
 CC transfected CHO cells.  
 SQ Sequence 1618 BP: 390 A; 486 C; 370 G; 372 T;

Query Match 2.6%; Score 26; DB 1; Length 1618;  
 Best Local Similarity 100.0%; Pred. No. 0.0014;  
 Matches 26; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 255 GATTACTACACATGTTCCACGAGCAT 280  
 |||||  
 DB 652 GATTACTACACATGTTCCACGAGCAT 677

Search completed: February 17, 2000, 10:11:16  
 Job time: 1931 sec

Thu Feb 17 13:27:17 2000

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